



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/983,002	10/17/2001	Griffith D. Neal	8864-24	7769
757	7590	11/09/2004	EXAMINER	
BRINKS HOFER GILSON & LIONE P.O. BOX 10395 CHICAGO, IL 60610			HEITBRINK, JILL LYNNE	
			ART UNIT	PAPER NUMBER
			1732	
DATE MAILED: 11/09/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/983,002

Applicant(s)

NEAL, GRIFFITH D.

Examiner

Jill L. Heitbrink

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-85 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 60 and 61 is/are allowed.
- 6) ☒ Claim(s) 1-59 and 62-85 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/26/04</u> . | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-32, 46-59 and 77-80 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not have support for the amended claim steps 1 g) and 46 f). Specifically, the original specification does not disclose the attempt to duplicate a predetermined time-pressure curve for each of the plurality of points in the mold. The flow of material is stopped when the end of fill point equals the setpoint pressure, see Fig. 7 and explanation on pages 19 and 20 of the specification. Figs. 9b and 9d show a graph of the pressure vs. time at the beginning of fill 510 and end of fill 520, but this graph is not used to control the fill of the molten phase change material.

3. Claim 80 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not have support for the new claim 80. The specification does not refer to controlling "fill amount". Normally,

Art Unit: 1732

controlling the amount of fill is related to the position of the screw. However, the specification only provides support for the monitoring of the position by the stroke sensor 60 and the rate of the plastic injection, see page 17, lines 6-20.

4. Claim 82-85 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not have support for the new claims 82-85. The specification does not provide a method of monitoring or controlling of the effective or apparent viscosity. The viscosity is affected by the control process. However, the control and monitoring does not directly refer to the effective or apparent viscosity during the molding operation.

5. Claims 83-84 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not have support for the new claims 83 and 84. The specification does not have support for monitoring the injection pressure inside of the injection molding machine, for example in the injection cylinder or in the hydraulic pressure drive.

6. Claim 78 has been added to claim the controlling of the "fill pressure". The specification has support for controlling the "injection pressure" which is during filling.

Art Unit: 1732

The claims are being examined based on the fill pressure being equivalent to the injection pressure since no other support for the term "fill pressure" is provided in the original specification.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is missing step f.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Art Unit: 1732

10. Claims 32 and 33 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-41 of U.S. Patent No. 6,437,464. Although the conflicting claims are not identical, they are not patentably distinct from each other because both claim a motor disc assembly with an injection molded thermoplastic encapsulation. Each hard disc drive having a substantially uniform resonance spectrum would have been inherent in the components of Patent No. 6,437,464 since the injection molding material has a vibratory dampening effect.

11. Claims 32 and 33 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-61 of U.S. Patent No. 6,617,721 . Although the conflicting claims are not identical, they are not patentably distinct from each other because both claim a motor disc assembly with an injection molded thermoplastic encapsulation. Each hard disc drive having a substantially uniform resonance spectrum would have been inherent in the components of Patent No. 6,617,721 since the injection molding material has a vibratory dampening effect.

12. Claims 32 and 33 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-31 of U.S. Patent No. 6,501,616. Although the conflicting claims are not identical, they are not patentably distinct from each other because both claim a motor disc assembly with an injection molded thermoplastic encapsulation. Each hard disc drive having a substantially uniform resonance spectrum would have been inherent in the components

Art Unit: 1732

of Patent No. 6,501,616 since the injection molding material has a vibratory dampening effect.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 32-45, 62-76 and 81-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viskochil, Pat. No. 5,650,896 taken together with Rosato et al. (INJECTION MOLDING HANDBOOK, 3rd edition).

15. Viskochil discloses a process of conventional injection molding (col. 6, lines 16 and 17) to form encapsulated hard disc drive components. Rosato teaches the conventional injection molding process controls for obtaining repetitive product specifications (see page 626, first column and 706-708). These controls including monitoring the pressure in the mold cavity at the beginning-of-fill point and an end-of fill point and in the runner to the mold cavity (such as page 669, second column through page 670), controlling the fill rate of the molten phase change material (page 662, second column), controlling the injection pressure (pages 649 and 650), injection being carried out until predetermined beginning-of-fill and end-of-fill pressures are reached or the setpoint values are reached for changing to the packing pressure control and a

Art Unit: 1732

stroke sensor for measuring the fill rate (see page 713). It would have been obvious to a person of ordinary skill in the art to use the process control taught by Rosato for the conventional injection molding in Viskochil so as to produce hard disc drive components economically and within specifications. As for the maximum flow rate being above 25 cm³/s, Rosato (pages 114-118) teach and give examples of conventional screw travel wherein the injection flow rate is 289 cm³/s (page 116, top right column). As for the hard disc drive components produced using the conventional injection molding having a first order frequency within thirty Hertz of the median first order frequency, the examiner is not capable of determining the results from such test. However, the conventional injection molding process controls teach the claimed process steps and thus the results of the process would have obviously been within the claimed limits. Additionally, page 27, lines 1-8 of the applicant's specification describe a first order frequency within three hundred Hertz of the median first order frequency being produced by conventional processes. Viskochil, col. 6, lines 13-16, discloses the injected material being a polyphenylene sulfide thermoplastic resin such as RYTON which inherently has a coefficient of linear thermal expansion of less than 2×10^{-5} in/in/°F throughout the range of 0°F to 250°F in the axial direction and the coefficient of linear thermal expansion in the Y and Z directions being no more than four times the coefficient of linear thermal expansion in the X direction (see RYTON Data Sheet or Applicant's specification page 15). The molded hard disc drive components each having substantially uniform resonance spectrum would have been obvious to a person of ordinary skill in the art since the known process for injection molding are performed so as to produce identical

Art Unit: 1732

parts with substantially uniform density across the molded part. As to the monitoring of the effective viscosity and controlling the apparent viscosity, Rosato, see pages 648 and 649, teaches the relationship of viscosity and the change in the material viscosity, to pressure and ram speed. Rosato, see pages 648-652, teach monitoring the hydraulic pressure in the injection molding machine. It would have been obvious to a person of ordinary skill in the art to use the process control taught by Rosato for the conventional injection molding in Viskochil so as to produce hard disc drive components economically and within specifications.

Allowable Subject Matter

16. Claims 60 and 61 are allowed.

Response to Arguments

17. Applicant's arguments filed July 26, 2004 have been fully considered but they are not persuasive.

18. As to claims 1-32, 46-59 and 77-80, the prior art does not teach the specific attempt to duplicate a predetermined time-pressure curve for each of the plurality of points in the mold. However, the examiner can not find support for this limitation in the original specification.

Art Unit: 1732

19. As to claim 34, Applicant argues that the prior art does not disclose injecting a molten phase change material into a mold cavity to a predetermined cavity pressure gradient. However, Rosato discloses on page 713 the use of sensors to monitor the pressure profile across the part and the duplicating of the profile in each molded part so as to form identical parts. Therefor, the cavity pressure gradient is maintained at the same predetermined cavity pressure gradient for each molded part so as to form identical molded parts.

20. As to claim 62, Applicant argues that the prior art does not recognize that by changing the molding parameters one can change the resonance frequency of a part. However, claim 62 does not refer to the changing of the resonance frequency, but the controlling to upon a reproducible resonance spectrum. The controlling of the pressure and fill to obtain the uniform performance in each injection shot would reproduce resonance spectrum.

21. As to claim 74 and 75, applicant refers to the conventional molding operations as on page 27 of the specification. However, Rosato shows that the monitoring of the pressure at the beginning of fill and at the end of fill is known in the prior art so as to produce identical molded parts. With the type of conventional controls disclosed by Rosato the range of the standard deviation for a group of parts may be within the claimed range.

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 1732

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill L. Heitbrink whose telephone number is (571) 272-1199. The examiner can normally be reached on Monday-Friday 9 am -2 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1732

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jill L. Heitbrink
Primary Examiner
Art Unit 1732

jlh